SBI3U Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Biodiversity Test

Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

/77

**Part A: Multiple Choice.** Place the letter of the best answer **in the margin** to the left of the question. (1 mark each)

/20 1. The taxon with the most number of different organisms is:

a) class b) order c) phylum d) species e) genus

1. Which of the following is not true of bacteria?
2. Single celled b) reproduce asexually c) no membrane bound organelles d) eukaryotic
3. Which term describes a substance that can weaken or kill bacteria?

a) pathogen b) virus c) antibiotic d) viroid e) prion

1. Which type of cell contains half the usual amount of chromosomes?

a) zygote b) haploid c) diploid d) all of the above e) none of the above

1. The two structures that all viruses have in common are:

a) envelopes and tails b) capsid and DNA c) nucleic acid and tails

d) capsid and nucleic acids e) tails and capsid

1. The main difference between plants and fungi are:

a) Plants have diploid and haploid stages in their life cycle, and fungi only have haploid stages

b) Fungi are heterotrophic and plants are autotrophic

c) Fungi have cell walls made of cellulose

d) Fungi produce spores

1. The name of the process in which a bacterial cell takes in and uses pieces of DNA from its environment is known as:
2. transformation
3. conjugation
4. fermentation
5. binary fission
6. The term that describes a dormant structure that forms inside certain bacteria in response to stressful environments is called:
7. capsule
8. bacillus
9. coccus
10. endospore
11. Perfectly symmetrical, unicellular, glass walled protists are termed:

a) dinoflagellates b) paramecium c) euglena d) diatoms e) cilia

1. Slime moulds are best classified as:

a) fungi that live on moist and decaying plants

b) protists that live on moist and decaying plants

c) water moulds that live on decaying plants

d) fungi that live at the water’s edge

11. *Clostridium* will die in the presence of oxygen. *Clostridium* is an example of what type of organism?

a) obligate anaerobe b) facultative anaerobe c) obligate aerobe d) protist

12. *Escherichia coli* is able to grow in the presence or absence of oxygen. *E. coli* is an example of what type of organism?

a) obligate anaerobe

b) facultative anaerobe

c) obligate aerobe

d) autotroph

13. Mushrooms are classified into which fungi phylum?

a) basidiomycota b) Ascomycota c) chytridiomycota d) zygomycota

14. A mat of long, thread-like microscopic hyphae cells together make the:

a) vacuole b) spores c) mycelium d) zygomycota e) ascus

15. In plants, the life-cycle includes haploid and diploid stages. What is the term given to the diploid generation?

a) gametophyte b) sporophyte c) angiosperm d) gymnosperm e) gymnophyte

16. Gymnosperms would be best classified as:

a) seed producing vascular plants that have cones

b) seed producing vascular plants that develop fruit

c) spore producing vascular plants that produce sporangia

d) spore producing plants that have cones

17. During a hike in Algonquin park you come across an interesting plant. It grows low to the ground forming a mat on the forest floor. Upon closer inspection, you notice it has the sporophyte growing on top of the gametophyte. What type of plant have you most likely found?

a) angiosperm b) gymnosperm c) bryophyte d) lycophyte

18. You go to a pond and scoop up some mud from the water’s edge. After straining it you notice many small organisms. Upon closer investigation, you notice they are heterotrophs which move by extensions of their cytoplasm called pseudopods. To which group of protists do these organisms belong?

a) red algae b) diatoms c) amoebas d) paramecium e) euglena

19. Which term describes a complex chemical found in the walls of fungi?

a) mycelium b) ovule c) lignin d) chitin e) cellulose

20. Which term describes a rod shaped bacterial cell

a) spirochete b) pathogen c) bacillus d) coccus

**Part B:** **Modified True/False (10 marks)**

Indicate whether the following statements are true (TR) or false (FA). **If they are false, change the italicized word to make it true.**

\_\_\_\_\_ 1. The microscopic filaments that make up the body of a fungus are called *chitin*.

\_\_\_\_\_ 2. *Gymnosperms* are plants that produce flowers.

\_\_\_\_\_ 3. All fungi are *heterotrophic.*

\_\_\_\_\_ 4. A *phylogenetic tree* is a series of branching, two part statements used to identify organisms.

\_\_\_\_\_ 5. *Cilia* are structures on a paramecium that aid in mobility.

\_\_\_\_\_6. A *capsule* is a small loop of DNA found in bacteria that contains a specific number of genes.

\_\_\_\_\_ 7. A *viroid* is a very small infections piece of RNA responsible for some serious diseases in plants.

\_\_\_\_\_ 8. A *flagella* is a stinging cell on a cnidarian used to capture food.

\_\_\_\_\_ 9. A *zygote* is a cell formed by the fusion of male and female gametes.

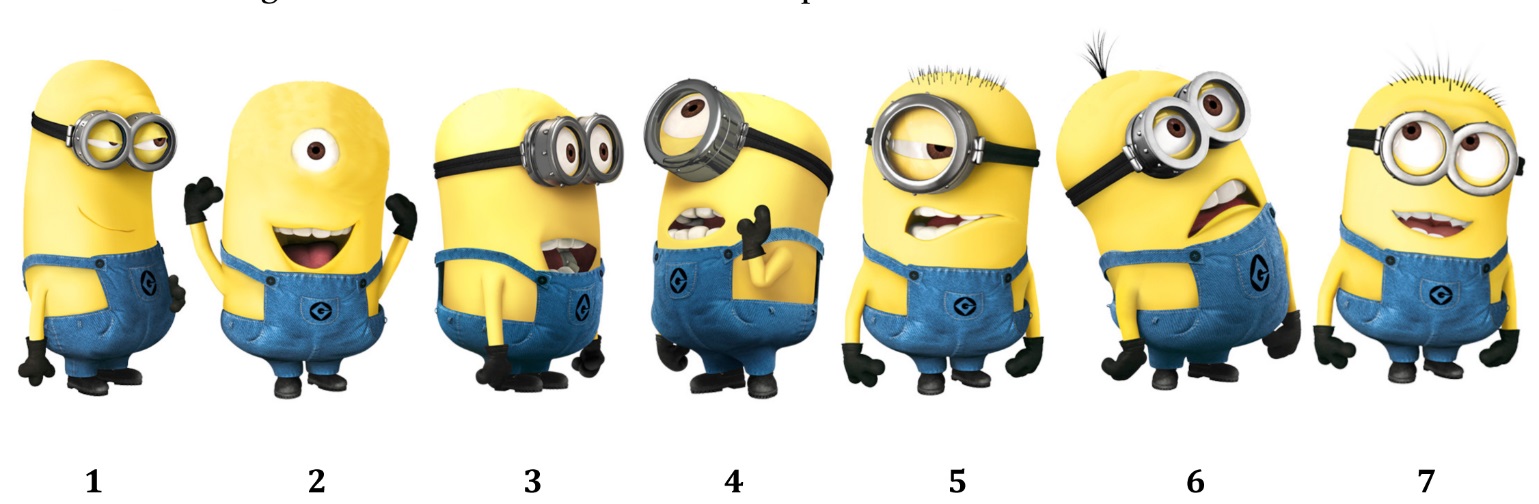
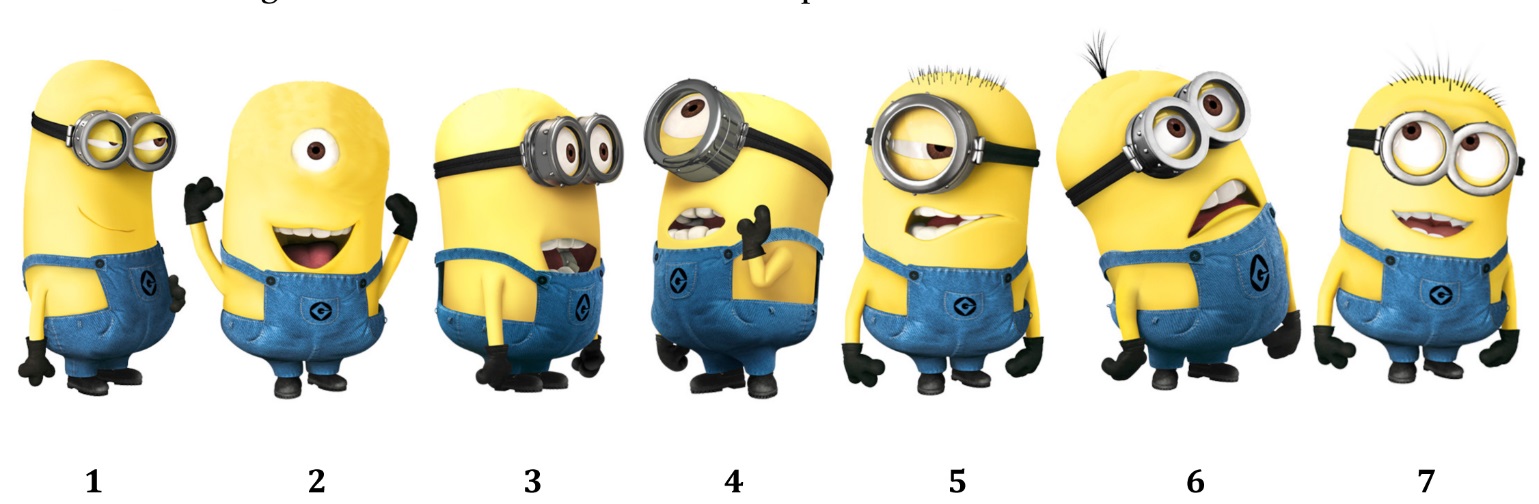
\_\_\_\_\_ 10. A *gametophyte* is a diploid organism that produces spores in an alternation of generations life cycle.

**Part C: Short Answer.** Answer the questions below in the space provided. (31)

1. Describe the lytic cycle of viral reproduction. Use a diagram to aid in your explanation. (5 marks)
2. Porifera are very interesting organisms. Describe **any 3** interesting features of Porifera and label **any 3** structures on the diagram of a porifera. (6 marks)



1. Create a dichotomous key to classify the organisms below. (6 marks)

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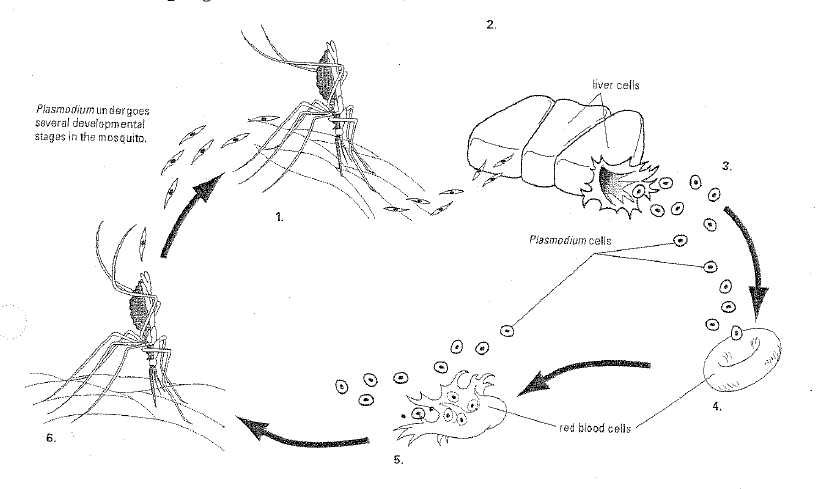
1. What are the three main characteristics that scientists use to classify organisms? (3 marks)
2. Describe in detail how a vaccine works? (3 marks)

6. Completely explain the alternation of generations using a diagram and explanations. (5 marks)

7.Name the three germ layers. What does each germ layer give rise to (grow to become…)? (3 marks)

**Part D**: Diagrams (16 marks)

Describe what is happening in the following diagram. (4)



1

2

3

4

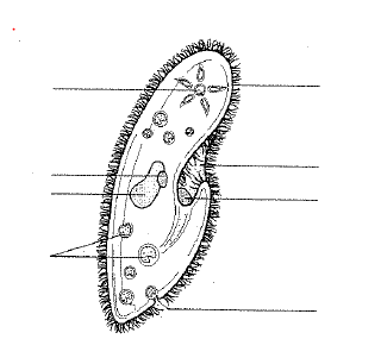
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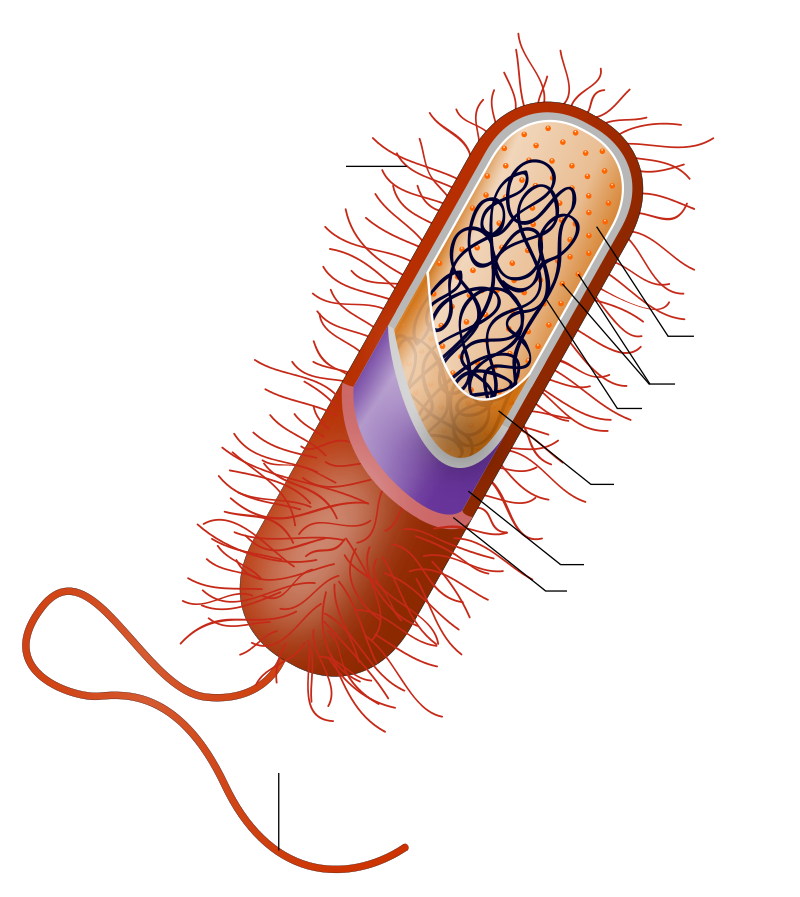
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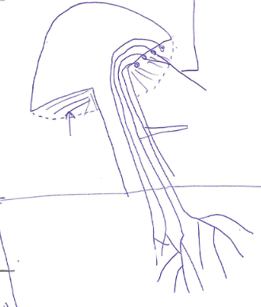
3.

4.

Label **any 8 structures** in the following diagrams. **Only the first 8 labels will be marked.**  (8)



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Which species in the phylogenetic tree shown here form a clade? Explain how you know. (2)

RABBIT

RAT

BAT

MONKEY

SEAL

Is the monkey more closely related to the bat or the rabbit? Explain how you know. (2)